

REMARKS

Claims 1-20 stand rejected under 35 U.S.C. 102(b) as being anticipated by, or, in the alternative, under 35 U.S.C. 103(a) as being obvious over Shigehiro et al. (JP 10-270245). As applied to the claims as amended, Applicants respectfully traverse the rejection.

In response to the rejection, Applicants have amended claims 1 and 19 to change the defined composition of the soft magnet with regard to the oxygen content z , from "1-12at%" to --1-5at%--. This lower range provides significant benefits. As shown in FIG. 6, a very small H_{ce} is achieved for the soft magnet of the FeCoAlO system of the present invention by setting the oxygen content to 2.2 at %, for example. Applicants respectfully submit that Shigehiro fails to teach or suggest a film having the composition defined in amended claims 1 and 19, and in fact teaches away from such a composition. See, for example, the abstract and paragraph [0017] in the translated copy of Shigehiro provided by the Examiner.

Further, Shigehiro fails to teach or suggest that the system of FeCoMO forming the soft magnetic film forms a solid solution, as clearly defined in claim 1 or 19. In other words, Shigehiro fails to teach or suggest that the element M (Al for example) or O exist not only at the grain boundaries but also inside the grains in the form of solid solution. This feature is supported in the present Application, for example, at page 19, line 24, et seq.

Contrary to this claimed feature, Shigehiro states that Al and O exist only at the grain boundaries. For example, at paragraph [0030], line 9 of the translation:

It is thought that such membrane structure originates in the selective oxidation of aluminum. That is, since aluminum is preferentially connected with the oxygen in sputtering gas, and this invention also forms the grain boundary in the film during membrane formation and a grain boundary increases with the increment in aluminum concentration, it is thought that crystal grain makes it detailed. This idea is supported by drawing 10. It of Co-Fe-aluminum increases with the increment in N concentration to hardly changing, even if aluminum concentration increases the spacing d of this invention film. Aluminum enters between Co-Fe grids and this increment is considered for expanding the distance between grids. On the other hand, by this invention film, even if aluminum concentration increases, in order that it may be connected with oxygen, a grain boundary may be formed and aluminum atom may not enter between Co-Fe grids, it is thought that a lattice spacing does not change. (Emphasis added)

One reason why such a difference appears between the claimed film and Shigehiro may be attributed to a difference in a sputtering process that may be used for formation of the film. In Shigehiro, a mixture of Ar and oxygen is used for the sputtering gas when forming the soft magnetic film, while the present application discloses that pure Ar may be used during a sputtering process. Because of this difference, it is believed that there is formed a granular structure, in which Al and O exist only at the grain boundaries, in the case of Shigehiro. In film according to claims 1 and 19, on the other hand, Al and O may be dissolved in the crystal grains in the form of solid solution.

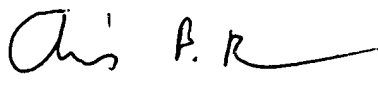
Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1 and 19 and dependent claims 2-18 and 20.

Applicants submit new claim 21, which includes the subject matter of original claim 1. Applicants submit that claim 21 is allowable over Shigehiro for at least the reason that Shigehiro fails to teach or suggest at least the defined solid solution of M and O, as stated above.

For at least the foregoing reasons, Applicants believe that this case is in condition for allowance, which is respectfully requested. The Examiner should call Applicants' attorney if an interview would expedite prosecution.

Respectfully submitted,

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